

Appl. No. 10/666,010  
Amdt. dated Aug. 19, 2005  
Reply to Office Action of May 19, 2005

### **REMARKS**

By the above amendments, applicant has canceled claims 2 and 4 without prejudice. Applicant has also amended claims 1, 3, 5, 7, 8 and 10-12. Claims 1, 3 and 5-12 remain pending in the application.

### **Specification**

Please amend the title of the invention as follows:

**PLASMA DISPLAY PANEL WITH PANEL UNIT THERMAL  
INTERFACE HAVING CARBON NANOTUBES**

It is submitted that the new title is sufficiently indicative of the invention to which the claims are directed.

### **Claim Rejections under 35 U.S.C. 103(a)**

Claims 7-12 are rejected under 35 U.S.C. 103(a) as being anticipated by Morita et al. (U.S. Patent 5,990,618) in view of Miller (WO 98/40431).

In response to the rejection of claim 7, applicant traverses as follows:

Claim 7 recites in part:

A plasma display panel comprising...**the thermal interface comprises carbon nanotubes, which form heat conduction channels perpendicular to surfaces of the thermal interface which contact the panel unit and the heat sink unit.**

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Applicant asserts that there is nothing in Morita et al. or Miller that teaches or suggests to one of ordinary skill in the art that he or she might or should provide a plasma display having a thermal interface, wherein the thermal interface comprises carbon nanotubes forming heat conduction channels perpendicular to surfaces of the thermal interface which contact the panel unit and the heat sink unit, as is provided in claim 7. Rather, Miller merely teaches that highly thermally conductive adhesives can comprise a resin selected from thermoplastic resins and thermoset resins together with pitch-based carbon fiber, and that such adhesives are suitable for use in a wide variety of electronic applications. That is, in Miller, the thermally conductive adhesives comprise carbon fiber, not carbon nanotubes. This difference indicates that the combination of Morita and Miller fails to teach or suggest the gas discharge display as recited in claim 7.

Furthermore, the plasma display panel as recited in claim 7 produces new and unexpected results. That is, the thermal interface comprising carbon nanotubes provides high thermal conductivity. Accordingly, claim 7 is submitted to be unobvious and patentable over Morita et al. in view of Miller under 35 U.S.C. 103(a). Reconsideration and withdrawal of the rejection and allowance of claim 7 are respectfully requested.

Claims 8 and 9 depend from claim 7. Therefore claims 8-9 should also be allowable.

For reasons similar to those asserted above in relation to claim 7,

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applicant submits that amended claim 10 should also be allowable.

Claims 11-12 depend from claim 10. Therefore claims 11-12 should also be allowable.

Claims 1, 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita et al. (US 5,990,618) in view of Getz, Jr. et al. (US 6,771,502).

In response to the rejection of claim 1, applicant traverses as follows:

Amended claim 1 recites in part:

A plasma display panel comprising...the thermal interface comprises carbon nanotubes, which form heat conduction channels perpendicular to surfaces of the thermal interface which contact the back substrate of the panel unit and the substrate of the heat sink unit.

Applicant submits that neither Morita et al. nor Getz, Jr. et al. nor their combination discloses, teaches, or otherwise suggests the invention as recited in amended claim 1.

Morita does disclose a plasma display panel and Getz, Jr. et al. does disclose the use of an anisotropic base under conductive fins for an electronic device heat sink. However, Morita et al. and Getz, Jr. et al., whether considered alone or in combination, do not disclose, teach, or otherwise

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suggest a plasma display panel in which **“...the thermal interface comprises carbon nanotubes, which form heat conduction channels perpendicular to surfaces of the thermal interface which contact the back substrate of the panel unit and the substrate of the heat sink unit.”**

In summary, there is nothing in the cited references that teaches or suggests to one of ordinary skill in the art that they might or should provide the plasma display panel of amended claim 1. Furthermore, the plasma display panel as recited in amended claim 1 produces new and unexpected results. That is, the plasma display panel provides high thermal conductivity.

Accordingly, amended claim 1 is submitted to be unobvious and patentable over Morita et al. in view of Getz, Jr. et al. under U.S.C. 103(a). Reconsideration and withdrawal of the rejection and allowance of claim 1 are respectfully requested.

Claims 3 and 5 depend directly from amended claim 1. Therefore, claims 3 and 5 should also be allowable.

Claims 1, 2, and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita et al. (US 5,990,618) in view of Miller (WO 98/40431) and further in view of Getz, Jr. et al. (US 6,771,502).

In response to the rejection of claim 1, applicant traverses as follows:

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Amended claim 1 recites in part:

A plasma display panel comprising...the thermal interface comprises carbon nanotubes, which form heat conduction channels perpendicular to surfaces of the thermal interface which contact the back substrate of the panel unit and the substrate of the heat sink unit.

Applicant submits that neither Morita et al., Getz, Jr. et al., Miller, nor their combination discloses, teaches, or otherwise suggests the invention as recited in amended claim 1.

Morita et al. does disclose a plasma display panel; Getz, Jr. et al. does disclose the use of an anisotropic base under conductive fins for an electronic device; and Miller does teach that highly thermally conductive adhesives can comprise a resin selected from thermoplastic resins and thermoset resins together with pitch-based carbon fiber, such adhesives being suitable for use in a wide variety of electronic applications. However, Morita et al., Getz, Jr. et al., and Miller, whether considered alone or in combination, do not disclose, teach, or otherwise suggest a plasma display panel in which "...the thermal interface comprises carbon nanotubes, which form heat conduction channels perpendicular to surfaces of the thermal interface which contact the back substrate of the panel unit and the substrate of the heat sink unit."

In summary, there is nothing in the cited references that teaches or suggests to one of ordinary skill in the art that they might or should provide

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the plasma display panel of amended claim 1. Furthermore, the plasma display panel as recited in amended claim 1 produces new and unexpected results. That is, the plasma display panel provides high thermal conductivity.

Accordingly, amended claim 1 is submitted to be unobvious and patentable over Morita et al. in view of Getz, Jr. et al. and further in view Miller under U.S.C. 103(a). Reconsideration and withdrawal of the rejection and allowance of claim 1 are respectfully requested.

Claims 2 and 4 have been canceled, and the rejection relating thereto is now moot.

Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita et al. (US 5,990,618) in view of Krassowski et al. (US 2003/0183379 A1).

In response to the rejection of claim 1, applicant traverses as follows:

Amended claim 1 recites in part:

A plasma display panel comprising the thermal interface comprises carbon nanotubes, which form heat conduction channels perpendicular to surfaces of the thermal interface which contact the back substrate of the panel unit and the substrate of the heat sink unit.

Applicant submits that Morita et al. nor Krassowski et al. nor their combination discloses, teaches, or otherwise suggests the invention as recited

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in amended claim 1.

Morita does disclose a plasma display panel, and Krassowski et al. does disclose the use of an anisotropic base under conductive fins for an electronic device. However, Morita et al. and Krassowski et al., whether considered alone or in combination, do not disclose, teach, or otherwise suggest a plasma display panel in which "... the thermal interface comprises carbon nanotubes, which form heat conduction channels perpendicular to surfaces of the thermal interface which contact the back substrate of the panel unit and the substrate of the heat sink unit."

In summary, there is nothing in the cited references that teaches or suggests to one of ordinary skill in the art that they might or should provide the plasma display panel of amended claim 1. Furthermore, the plasma display panel as recited in amended claim 1 produces new and unexpected results. That is, the plasma display panel provides high thermal conductivity.

Accordingly, amended claim 1 is submitted to be novel, unobvious and patentable over Morita et al. in view of Krassowski et al. under U.S.C. 103(a). Reconsideration and withdrawal of the rejection and allowance of claim 1 are respectfully requested.


Claim 6 depends directly from amended claim 1. Therefore, claim 6 should also be allowable.

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In view of the foregoing, the present application as claimed in the pending claims is considered to be in a condition for allowance, and an action to such effect is earnestly solicited.

Respectfully submitted,

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